"Who Goes There?"

Evolution Activity Series #1

MATERIALS

- Graph paper
- Ruler
- Photocopies of the Laetoli site and individual footprints
- Student lab sheet

S.S.S. Addressed

S.C.C.	2.3
S.C.F.	1.3 2.3
S.C.H.	1.3 2.3 3.3
M.A.A.	4.4 5.4
M.A.E.	3.4

The Mystery of the Laetoli Footprints:

Evolution Activity incorporating math and science

The Laetoli footprints represent an important discovery in the history of our human ancestors. They clearly show key features of important evolutionary steps on the road to humanity: aligned toes and a pronounced arch. They show this feature in clearly dated volcanic ash that is 3.7 million years old.

This is an inquiry driven science lesson focused on investigating a link between foot length and height. In a two (or more) step approach, students will begin by collecting and organizing data about their classmates. From there, students will reach a consensus regarding the research question.

When a whole class consensus is reached (or as close as possible), introduce the Laetoli footprint reproductions. Students will then be challenged to make careful measurements and calculations about the organisms that left those prints.

Aligned toes and a pronounced arch are signature characteristics of being human

Activity Directions

Begin by showing students a picture of a person's footprint. Ask groups to brainstorm different things that can be learned or inferred from that single piece of evidence. As students share, record all ideas on the board.

When all ideas have been shared, begin discussing the pros and cons of each idea, asking students how they would go about proving their ideas about the person who made the footprint.

Lead students to the idea about investigating the link between height and foot length (or suggest it yourself if no students raise the idea).

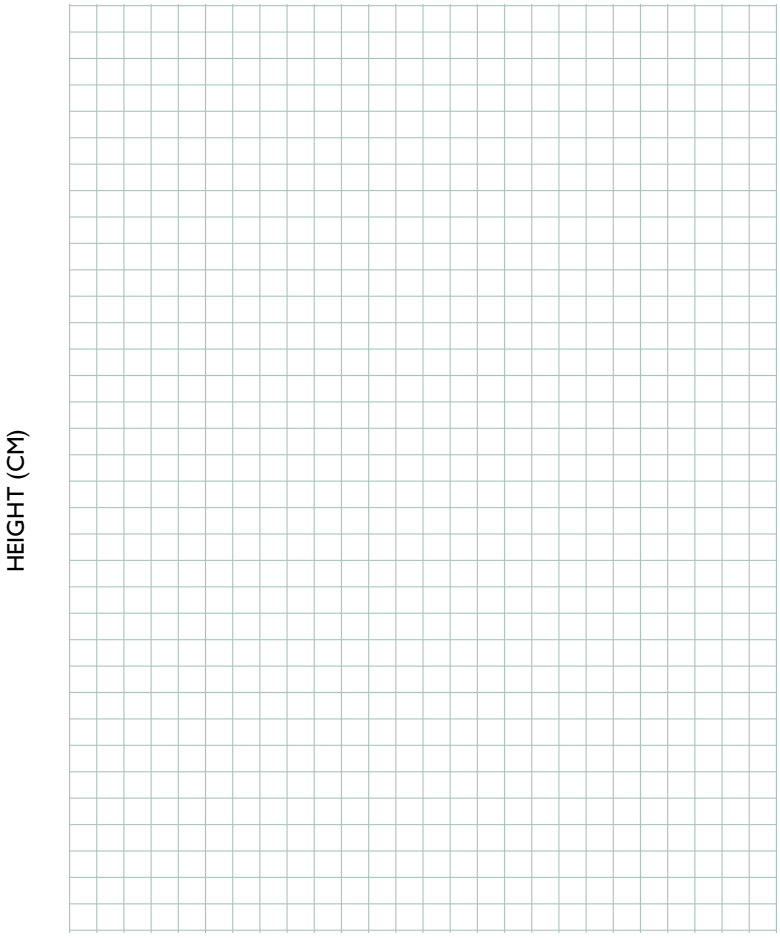
At this point, you have two ways to proceed: a) provide students with the activity sheet on the 2nd page of this activity (for a more directed data collection time)

b) provide students with meter sticks and ask them how they would determine if there is a relationship between height and foot length (for a more open-ended data collection time).

"Who Goes There?" Student Activity Sheet

Collect data on every student in class for both height and foot length:

STUDENT	HEIGHT (cm)	FOOT LENGTH (cm)	STUDENT	HEIGHT (cm)	FOOT LENGTH (cm)
1.			15.		
2.			16.		
3.			17.		
4.			18.		
5.			19.		
6.			20.		
7.			21.		
8.			22.		
9.			23.		
10.			24.		
11.			25.		
12.			26.		
13.			27.		
14.			28.		



Scatter Plot & Best Fit Line: On the graph below, plot each student point AND then draw a BEST FIT line.

Conclusion Questions:

1. How would you describe the relationship between foot length and height?

2. Devise a mathematical formula that could be made to determine height or foot length if you were given one of those measurements.

3. Using your formula, estimate the height of a person whose foot is 12 cm long.